

## **12.0 MATERIAL ASSETS - UTILITIES**

### **12.0.1 Introduction**

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This section of Chapter 12 Material Assets – Utilities of the Environmental Impact Assessment Report examines the material assets serving the subject lands relating to water supply, foul sewerage, electricity, gas and telecommunications.

### **12.0.2 Assessment Methodology**

The methodology followed for this section is in accordance with the EPA "Environmental Impact Assessment Reports, Guidelines 2022". Information on built assets in the vicinity of the development lands was assembled from the following sources:

- A desktop review of Uisce Eireann Utility Plans, ESB Networks Utility Plans, Gas Networks Ireland Service Plans, Eir E-Maps and Virgin Media Maps,
- Submission of a Pre-Connection Enquiry Application to Uisce Eireann,
- Review of ESB Network Utility Plans
- Review of Gas Networks Ireland exiting network maps,
- Review of EIR Telecommunications exiting network maps,
- Review of Virgin Media Telecommunications exiting network maps, and
- Site Inspection / Walkover.

As part of assessing the likely impact of the proposed development, foul drainage discharge and water usage calculations were carried out in accordance with the following guidelines, in line with best practice:

- Greater Dublin Strategic Drainage Study (GDSDS),
- IS EN752, "Drain and Sewer Systems Outside Buildings", and
- Uisce Eireann's Code of Practice (water demand and foul water loading).

## **12.1 BASELINE ENVIRONMENT**

### **12.1.1 Water Supply**

There is an existing 200mm diameter watermain laid within the spur road at Abbots Grove which has been extended up to the boundary of the subject site and is intended to serve the subject site. There is also an existing 160mm diameter watermain within the Stocking Wood development which is extended up to the site boundary.

A Pre-Connection Enquiry form was submitted to Uisce Éireann on 26/01/2024 for 400 units which outlined the proposals for the drainage of wastewater from the development. Uisce Éireann responded with the Confirmation of Feasibility (COF) on 12/02/2024, with reference no. CDS24000704. Refer to Appendix A, in report 24-007r.007, for the Uisce Éireann Confirmation of Feasibility. In summary, the letter states that the water connection is feasible without infrastructure upgrades.

A revised Pre-Connection Enquiry form was submitted to Uisce Éireann on 06/12/2024 for 505 No. houses and 1 No. creche and a COF with reference number CDS24010539 was received from Uisce Éireann on 05/03/2025 which further confirmed that the water connection is feasible without infrastructure upgrades. Refer to Appendix B, in report 24-007r.007, for the revised Uisce Éireann Confirmation of Feasibility.

In addition, the detailed water supply design proposals for the development were submitted to Uisce Éireann and a Statement of Design Acceptance was received in April and is included in accompanying Engineering Assessment Report Appendices..

**Table 1 Total Water Demand**

Description	No. of Units/People	Flow l/h/day	Population per Unit	Total Discharge (l/d)
Residential Units	502	150	2.7	203,310
Creche	1	50	120	6,000
<b>Total</b>				<b>214,535 l/d</b>

The total water requirement from the public supply, for the development, is estimated at 215 m<sup>3</sup>/day. The proposed watermain network can be seen on Waterman Moylan drawing BYCN- WM-ZZ-XX-DR-C-P300 and P301.

### **12.1.2 Foul Sewerage**

There is an existing 225mm diameter foul sewer constructed in the spur road adjacent to Abbot Grove development on the west side of the site. This 225mm sewer connects to an existing 450mm diameter sewer north of Stocking Avenue. There are existing foul sewers within the Stocking Wood development which are not shown on the Uisce Eireann records (assumed to be not taking in charge). These sewers have been CCTV surveyed by the applicant who has rights to connect into them.

It is proposed to provide a gravity system which will discharge to the existing foul water infrastructure north of the subject site at 2 No. locations for the west and east parts of the site respectively. Refer to drawing BYCN- WM-ZZ-DR-C-P200 and P201 for exact details of the proposed foul network.

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A revised Pre-Connection Enquiry form was submitted to Uisce Éireann on 06/12/2024 for 505 No. houses and 1 No. creche and a COF with reference number CDS24010539 was received from Uisce Éireann on 05/03/2025 which further confirmed that the foul connection is feasible without infrastructure upgrades. Refer to Appendix B, in report 24-007r.007, for the revised Uisce Éireann Confirmation of Feasibility.

The design of the foul water drainage has been based on the “*Code of Practice for Wastewater Infrastructure*”, (July 2020) published by Uisce Éireann. The peak foul flow is based on Uisce Éireann recommended peak demand/ flow factors. Pipe capacities and velocities have been calculated using Colebrook-White formula with a roughness coefficient (Ks) of 1.5 mm.

The proposed development will consist of 502 no. residential units and a creche with a PE of 109. Based on the Uisce Éireanns Code of Practice, the peak foul flow from the proposed development will be as follows:

*Table 0-1 Calculation of proposed Foul Water Flow*

	Description	No. of Units	Flow l/h/day	Population per Unit	Infiltration Factor	Total Discharge (l/d)
West site	Residential Units	272	150	2.7	1.1	121,176
	Creche	1	50	120	1.1	6,600
<b>Totals</b>						<b>127,776 l/d</b>

	Description	No. of Units	Flow l/h/day	Population per Unit	Infiltration Factor	Total Discharge (l/d)
East site	Residential Units	230	150	2.7	1.1	102,465
						<b>Total</b> <b>102,456 l/d</b>

#### Calculation of Proposed Peak Foul Flow

West Site	Total Daily Discharge (from Table 1.)	<b>127,776</b>	l/d
	Residential Dry Weather Flow (RDWF)	1.4025 l/s	
	Commercial Dry Weather Flow (CDWF)	0.0764 l/s	

<i>Residential Foul Peak Flow (=6 x RDWF)</i>	<i>8.415 l/s</i>
<i>Commercial Foul Peak Flow (=4.5 x CDWF)</i>	<i>0.3438 l/s</i>

<u>Calculation of Proposed Peak Foul Flow</u>			
East Site	Total Daily Discharge ( <i>from Table 1.</i> )	102,465	l/d
	Residential Dry Weather Flow (RDWF)	1.19 l/s	

Residential Foul Peak Flow ( $= 6 \times RDWF$ ) 7,141/s

The total proposed peak outflow from the west and east site is 8.7588 l/s and 7.14 l/s, respectively. The 2 no. proposed foul water outfalls from the site are 225 mm-diameter pipes laid at a minimum gradient of 1:100 for the west site and 1:150 for the east site, each giving a minimum capacity of 45.6l/s and 37.2l/s respectively for the west and east part of the site. Therefore, the proposed outfall has adequate capacity to cater for the flows from the development.

### 12.1.3 Existing Electricity

ESB Networks have been contacted and an existing ESB network map for the area surrounding the proposed Masterplan development has been obtained, refer to Figure 12-1: *ESB Network Map* below. ESB infrastructure, both under and overground, exists on and in the immediate vicinity of site. It is intended that the existing overground infrastructure internal to the sites be undergrounded as part of the development works. detailed design of such will be undertaken at the appropriate stage as ESB networks will only engage in this regard on projects that have received a grant of planning permission.



Figure 12-1: ESB Network Map

#### **12.1.4 Existing Gas Networks Map**

Gas Networks Ireland have been contacted and an existing gas network map for the area surrounding the proposed Masterplan development has been obtained, refer to Figure 12-2: Gas Network Map, below. There are existing gas pipes in the vicinity of the site, with adjacent residential developments being served by gas. Gas Networks Ireland maps also indicate that a provision may be left continuation of the gas network into the site, with a small

section of pipe indicated within the proposed development site. It is intended that the any existing gas infrastructure internal to the sites be diverted / removed as part of the development works. Detailed design of such works will be undertaken at the appropriate stage as Gas Networks Ireland will only engage in this regard on projects that have received a grant of planning permission.



Figure 12-2: Gas Network Map

### 12.1.5 Telecommunications

Eir & Virgin have been contacted and their existing network maps for the area surrounding the proposed development has been obtained. Figure 12-3: Eir Network Maps below &

Figure 12-4: Virgin Network Map below show these networks respectively. There are existing Eir and virgin services adjacent to the proposed development.



Figure 12-3: Eir Network Maps



Figure 12-4: Virgin Network Map

## 12.2 PREDICTED IMPACTS

### 12.2.1 Water Supply

#### 12.2.1.1 Construction Phase

- There is a risk of contamination of the existing water supply during construction of the development when the connection of the trunk watermain to the public water supply is being made.
- There is a risk of damage to watermain fittings due to high pressure in the existing watermain.
- There will be a minor water demand for site offices.
- There is a possibility of a temporary increase in traffic due to deliveries of materials and other construction-related traffic.
- There is a risk of damage to existing buried utilities during excavations works resulting in temporary loss of supply to existing properties.
- The proposed development will not give rise to any significant long-term adverse impact. Negative impacts during the construction phase will be short term only.

The construction of the proposed development has the potential to cause a **slight, adverse, temporary, residual impact** on the receiving water supply network.

#### 12.2.1.2 Operational Phase

- There will be an increased demand for water once the development is occupied.

The construction of the proposed development has the potential to cause a slight, adverse, temporary, residual impact on the receiving water supply network.

### **12.3.1 Foul Sewerage**

#### **12.3.1.1 Construction Phase**

- There is a risk of the ingress of ground/surface water to the foul water network.
- There is a risk of damage to existing buried utilities during excavations works resulting in temporary loss of supply to existing properties.
- There is a possibility of a temporary increase in traffic due to deliveries of materials and other construction-related traffic.
- There will be some disruption to traffic during construction works on the public road.
- Cross-connection between foul and surface water pipes on-site.

The construction of the proposed development has the potential to cause a **slight, adverse, temporary, residual impact** on the receiving foul network.

#### **12.3.1.2 Operational Phase**

- Blockages may occur within the pipe network and the wastewater could become septic.
- Foul water could be connected to the surface water drainage network on-site.
- Increased flows to the wastewater network and the wastewater treatment plant.

The construction of the proposed development has the potential to cause a **slight, adverse, temporary, residual impact** on the receiving foul network.

### **12.4.1 Electricity, Gas & Telecommunications**

#### **12.4.1.1 Construction Phase**

The installation of the utilities for the development will be conducted in parallel with the other services. This will mainly involve excavation of trenches to lay ducting, construction/installation of access chambers and backfilling of trenching. The trenching and backfilling works will be carried out in conjunction with the construction of the roads and footpaths throughout the scheme.

The relocation or diversions of the existing overhead ESB lines may lead to loss of connectivity to and/or interruption of the supply from the electrical grid to the surrounding areas. Any loss of supply will be managed by ESB Networks to minimise the impact on neighbouring properties.

It is not proposed to bring gas services to any buildings within the site and therefore any proposed works would be limited to a localised diversion that may be required at or near the site boundary to allow permanent works to progress. The potential loss of connection to the Gas Networks Ireland infrastructure while carrying out works to provide service connections.

There is also a potential loss of connection to the Telecommunications infrastructure while carrying out works to provide service connections. Any loss of supply will be managed by Eir / Virgin Media to minimise the impact on neighbouring properties.

The construction of the proposed development has the potential to cause a **slight, adverse, temporary, residual impact** on receiving the electricity, gas and telecommunication networks.

#### 12.4.1.2 Operational Phase

The impact of the operational phase of the proposed development on the power supply network would be the requirement for an Electrical Diversified Load of 3.0 MW which will be split over up to 8no ESB sub-stations located throughout the scheme.

There will be no increase in demand for gas as a result of the Phase 2 development and there will be no impact on existing consumers.

The impact of the operational phase of the proposed development on the telecommunications network would be to increase the demand on the existing network.

The construction of the proposed development has the potential to cause a **slight, adverse, temporary, residual impact** on receiving the electricity, gas and telecommunication networks.

### 12.5 MITIGATION MEASURES

#### 12.5.1 Electricity, Gas & Telecommunications

##### 12.5.1.1 Construction Phase

- Additional survey works will be carried out to confirm the location of existing services using service records, GPR surveys and slit trenches to ensure that their position is accurately identified before excavation works commence.
- All water mains will be cleaned, sterilised and tested to the satisfaction of the Uisce Eireann/Local Authority before connection to the public water main.
- All connections to the public water main will be carried out under the supervision of the Uisce Eireann/Local Authority.

##### 12.5.1.2 Operational Phase

- It is not envisaged that any other remedial or reductive measures will be necessary upon the completion of the development.

### **12.5.2 Foul Sewerage**

#### **12.5.2.1 Construction Phase**

- Additional survey works will be carried out to confirm the location of existing services using service records, GPR surveys and slit trenches to ensure that their position is accurately identified before excavation works commence.
- Foul water pipes to be laid with sufficient falls to ensure self-cleansing velocity
- Foul pipes will be carefully laid to minimise the potential for cross-connections.

#### **12.5.2.2 Operational Phase**

- The foul network will be inspected annually and maintained.

### **12.5.3 Electricity**

#### **12.5.3.1 Construction Phase**

- Additional survey works will be carried out to confirm the location of existing services using service records, GPR surveys and slit trenches to ensure that their position is accurately identified before excavation works commence.
- All works will be carried out in accordance with ESB Networks methods and standards
- Live connections to the existing electricity network will only be made by ESB Networks

#### **12.5.3.2 Operational Phase**

- All works will be completed in accordance with ESB details and standards and will be deemed to be safe for use with no impact on the receiving environment once installed.

### **12.5.4 Gas**

#### **12.5.4.1 Construction Phase**

- Additional survey works will be carried out to confirm the location of existing using service records, GPR surveys and slit trenches to ensure that their position is accurately identified before excavation works commence.
- Gas Networks Ireland will take full responsibility for the installation/diversion/removal of the gas pipework within the site.
- All work will be carried by specialist sub-contractors with specific training for working on gas main networks.

#### **12.5.4.2 Operational Phase**

- It is not envisaged that any other remedial or reductive measures will be necessary upon the completion of the development.

### **12.5.5 Telecommunications**

#### **12.5.5.1 Construction Phase**

- Additional survey works will be carried out to confirm the location of existing services using service records, GPR surveys and slit trenches to ensure that their position is accurately identified before excavation works commence.
- All works will be carried out in accordance with Eir & Virgin Media methods and standards
- Live connections to the existing electricity network will only be made by Eir & Virgin Media

#### **12.5.5.2 Operational Phase**

- It is not envisaged that any other remedial or reductive measures will be necessary upon the completion of the development.

## **12.6 RESIDUAL IMPACTS**

### **12.6.1 Water Supply**

#### **12.6.1.1 Construction Phase**

Due to the proposed mitigation measures outlined above, the impact on the water supply infrastructure during the construction phase of the proposed development is slight.

There will be disruption to local traffic during the connection of the watermain spurs on Abbots Grove and Stocking Wood.

#### **12.6.1.2 Operational Phase**

There will be an increased demand for water supply due to the development resulting in a moderate impact in terms of demand on the water supply infrastructure. This impact will be managed through consultation with Uisce Eireann to ensure necessary upgrades are provided and that connections are carried out in accordance with the Code of Practice.

### **12.6.2 Foul Sewerage**

#### **12.6.2.1 Construction Phase**

Due to the proposed mitigation measures outlined above, the impact on the foul network construction will be not significant.

There may be short term disruption to local traffic on the connection of the foul sewers from the proposed development to the existing foul sewers.

#### **12.6.2.2 Operational Phase**

There will be increased flows in the existing foul water drainage network, resulting in a moderate impact in terms of demand on the receiving foul water network. This impact will be managed through consultation with Uisce Eireann to ensure any necessary upgrades are provided and that connections are carried out in accordance with the Code of Practice.

### **12.6.3 Electricity**

#### **12.6.3.1 Construction Phase**

Due to the proposed mitigation measures outlined above, the impact of the proposed work on the ESB Network will not be significant.

There may be short term disruption to local traffic or temporary interruptions to supply while the tie-ins to the existing networks are being made.

#### **12.6.3.2 Operational Phase**

There will be an increased demand on the ESB Network as a result of the development however it is not expected that this will have any impact on the operation of the network.

There may be short term disruption to local traffic or temporary interruptions to supply while the diversions to the existing networks are being made.

### **12.6.4 Gas**

#### **12.6.4.1 Construction Phase**

Due to the proposed mitigation measures outlined above, the impact of the proposed work on the Gas Network will not be significant.

#### **12.6.4.2 Operational Phase**

There will be no increase in demand for gas as a result of the Phase 2 development and there will be no impact on existing consumers.

### **12.6.5 Telecommunications**

#### **12.6.5.1 Construction Phase**

Due to the proposed mitigation measures outlined above, the impact of the proposed work on the Telecommunication Network will not be significant.

There may be short term disruption to local traffic or temporary interruptions to supply while the tie-ins to the existing networks are being made.

#### **12.6.5.2 Operational Phase**

The impact of the operational phase of the proposed development on the telecommunications network would be to increase the demand on the existing network.

## **12.7 CUMULATIVE IMPACTS**

### **12.7.1 Water Supply**

The connection agreement from Uisce Eireann, given at construction stage, considers the cumulative impact of all other developments on the water supply and will only be awarded if there is capacity within the network. Cumulatively, there will be an increased demand on the network however, due to the

capacity assessment carried out by Uisce Eireann the demand will not exceed the available supply. Therefore, the cumulative impact on the water supply is negligible.

### **12.7.2 Foul Sewerage**

#### **12.7.2.1 Construction Phase**

The onsite works will not have any effect on the cumulative impacts on the foul network. It will be the responsibility of the contractor and Uisce Eireann to ensure any off-site works, i.e. the final connection to the public sewer, is programmed with consideration for connections from other sites in the area so as not to negatively impact on the functionality of the public sewer.

#### **12.7.2.2 Operational Phase**

The connection agreement from Uisce Eireann, given at construction stage, considers the cumulative impact of all other developments on the foul network and will only be awarded if there is capacity within the network. Cumulatively, there will be an increased demand on the network however, due to the capacity assessment carried out by Uisce Eireann the demand will not exceed the available capacity of the network. Therefore, the cumulative impact on the foul network is negligible.

### **12.7.3 Electricity**

Should any other developments be under construction or planned in the vicinity of the site they are likely to have similar impacts during the construction phase in relation to Material Assets. Should the construction phase of any developments coincide with the development of this proposed site, potential cumulative impacts are not anticipated once similar mitigation measures are implemented.

### **12.7.4 Gas**

Should any other developments be under construction or planned in the vicinity of the site they are likely to have similar impacts during the construction phase in relation to Material Assets. Should the construction phase of any developments coincide with the development of this proposed site, potential cumulative impacts are not anticipated once similar mitigation measures are implemented.

### **12.7.5 Telecommunications**

Should any other developments be under construction or planned in the vicinity of the site they are likely to have similar impacts during the construction phase in relation to Material Assets. Should the construction phase of any developments coincide with the development of this proposed site, potential cumulative impacts are not anticipated once similar mitigation measures are implemented.

## **12.8 MONITORING**

The proposed monitoring of the various built services during the operation stage will include:

- The water usage within the proposed development will be monitored via the bulk water meters. Records will be maintained by Uisce Eireann to ensure any excess usage is identified and investigated as necessary.

- Uisce Eireann will monitor the operation of the foul drainage network including the receiving environment.
- The construction and waste management plans will be adhered to.
- The provision of utility services including electricity, gas and broadband will be monitored by the relevant utility providers.

## **12.9 DIFFICULTIES ENCOUNTERED**

There were no difficulties encountered.

## **12.10 INTERACTIONS**

The main high level interactions between Material Assets - Utilities and other environmental factors include: Water, Population & Human Health and Traffic & Transport. Please refer to Chapter 16 Interactions for further information on interactions.

## **REFERENCES**

- Code of Practice for Water Infrastructure – Connections and Developer Services, (2020), Uisce Eireann
- Code of Practice for Wastewater Infrastructure – Connections and Developer Services, (2020), Uisce Eireann
- Openeir Emaps
- Environmental Impact Assessment Reports – Guidelines, (2022), Environmental Protection Agency
- ESB Networks
- Virgin Media Emaps
- Gas Networks Ireland – Cork Design Department
- Greater Dublin Strategic Drainage Study (GDSDS), (2015), Dublin Drainage
- Irish Building Regulations – Part H 2010 – Drainage and Waste Water Disposal